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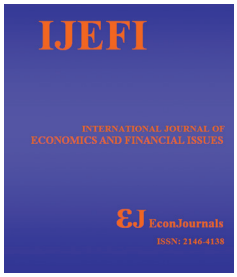

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Lock-up Expiry and Trading Volume Behaviour of Malaysian Initial Public Offering's

Abdolhossein Zameni[1]*, Othman Yong[2]

[1]Henley Business School, University of Reading Malaysia, Malaysia, [2]Graduate School of Business, Universiti Kebangsaan Malaysia, Malaysia. *Email: a.zameni@henley.edu.my

ABSTRACT

The study aims to investigate the lock-up provisions of initial public offering's (IPOs) and its effects on trading volume changes around the lock-up expiry date of Malaysian IPOs by using both the event study methodology and the comparison period returns approach (CPRA). Unlike the US and the UK, Malaysia's lock-up length is fixed and the number of shares that should be under the lock-up is pre-determined by the security commission. The sample comprises 379 Malaysian IPOs, issued from January 2001 to December 2011. The results of the event study methodology and CPRA shows a positive abnormal trading volume at lock-up expiry date for IPO market, except for the ACE market, construction and technology sectors, which is negative and is not consistent with our hypothesis and there is no evidence in previous literatures regarding the significant negative trading volume before and after the lock-up. High trading volume at and around the lock-up expiration is compatible with shareholders' selling due to diversification reasons and wealth recognition and which is also an indication of insider's lack of confidence about a company's future prospect. Significant negative trading volume can be interpreted in a way that insiders of those related boards and sectors do not sell their shares significantly but would rather watch what would happen to the market and are optimistic about Market's future. Furthermore, when we do not adjust the trading volume for the market, the CPRA methodology does not show abnormal trading volume between event window and non-event windows.

Keywords: Lock-up Provision and Malaysiain Initial Public Offering Market, Trading Volume Behaviour, Trading Board
JEL Classifications: G02, G10, G14, G18, G38

1. INTRODUCTION

How the initial public offering's (IPO) firm can decrease investors' uncertainty? The study of Williamson (1996) mentioned lock-up as a bonding mechanism is a proper tool for reducing the uncertainty around any non-spot transaction. Lock-up, or better known as share moratorium in Malaysia, and lock-in in the UK, means controlling shareholders of IPO firms to bind themselves not to sell portions of their shareholdings during a lock-up period immediately after the IPO. The exact lock-up expiry date and the portion that can be sold each time are mentioned in the prospectus of every IPO firm. In some countries, the length of lock-up is flexible, while in others, is fixed by the related authorities. In Malaysia the lock-up period is determined by security commission (SC) and is fixed.

Generally, lock-up contracts exist to reduce the information asymmetries between shareholders and managers, following the IPO (Brau et al., 2004). Lock-up is attractive to investors due to accessibility to significant information related to uncertainty of the IPOs within the duration of share lock-up, and the fact that lock-up duration signals the issuer's uncertainties.

The concept of uncertainty proposes that investors will diverge in their expectations because uncertainty produces disagreement and as believed by many scholars, investors' disagreement leads to high trading volume. Karpoff's (1986) model contends that trading volume is a good proxy divergence for opinion among investors and therefore, rises in trading volume means investors either have divergent understanding on information or have similar understanding which were divergent before expectations.

In addition, other studies such as Harris and Raviv (1993), Scheinkman and Xiong (2002), and Hong and Stein (2003), show that divergent opinions motivate trading activity. Trade activities

happen shortly following the lock-up expiry date and show the market's attitude to the company's actual value. In most cases, lock-up expiry can critically hit the stock market as by the time the lock-up expires, company insiders come into the market and the amount of public float stocks rise greatly. Many scholars have reported a substantial price decline and a persistent rise in trading volume around lock-up expiry (Ofek and Richardson, 2000; Bradley, et al., 2001; Field and Hanka, 2001). The outcomes reveal that the market explains heavy trading as bad and thin trading as good news (Mohan and Chen, 2002). As such in Malaysia lock-up length is fixed and pre-determined, significant trading volume will show uncertainty of investors and insiders about company's future prospect. Therefore, investigating the movement of trading volume around the lock-up expiry will be a useful indication for investors, which show the insiders opinion about the company.

The study of Espenlaub et al. (2001) indicates that US lock-up durations is almost standardized at 180 days while the UK shows greater difference. In the Malaysian market, several required lock-up periods are imposed and are compulsory, whereas the US and UK markets are free of these compulsory rules. In the case of Malaysian IPOs, lock-up provision for each board and some sectors are different which creates a unique opportunity to examine the trading volume around the lock-up expiration dates.

In Asian capital markets, IPO plays an important role in assigning new capital. The importance of the screening practice by Malaysian regulators to identify the performance of the IPO and equity market is inline with Malaysia's aspiration to become the world's hub for Islamic capital market and a developed country in the year 2020.

Given the importance of such behavioural implications, this paper seeks to examine one of the main events of each IPO firm that could potentially explain insiders' heterogeneous beliefs in a sample of 379 IPOs in Malaysia. This study is expected to be a main contribution to the literature on trading behaviour of insiders after the lock-up expiry date of Malaysian IPOs. In this paper, two different event study methodology and hypothesise are used. The results indicate that the abnormal volume around the unlock day is significantly positive for the IPO market, some sectors and trading board. Beside this increase, there is a significant decrease in trading volume for the ACE market, construction and technology sectors, which is not consistent with our hypothesis and there is no evidence in previous literatures regarding the significant negative trading volume before and after the lock-up.

The remainder of this paper is organized as follows. Following the introduction section, Section 2 discusses the related literature and Section 3 describes the data and methodology. Section 4 presents the results, whilst Section 5 concludes the paper.

2. LITERATURE REVIEW

Brav and Gompers (2003) propose that insiders can signal quality of the company using three tools: under-pricing, the portion of stocks locked-up, and the duration of lock-up. After the expiration date, only the percentage of outstanding shares held by insiders can be sold. This percentage of sold shares can raise the public float and enlarge information asymmetry among insiders and buyers. Mohan and Chen (2002) assert that a lower trading volume after an expiration of lock-up is good news, but large trading volume is bad news. Unlike the US and UK, Malaysian lock-up length is fixed and the amount of shares which should be under the lock-up is pre-determined by SC thus, lock-up length does not carry any information about insider's behaviour. But, the trading volume around unlock day is a good proxy for insider's perception of the company.

A model by Leland and Pyle (1997) declares that the portion of shares kept by insiders at the IPO time can be accepted as a signal of quality. Hence, insiders of high quality companies like to keep most of their shares after the IPOs, and consequently remain more undiversified.

Ofek and Richardson (2000) mention that we can expect certain features after the lock-up expiration. Particularly, we can expect rise in trading volume because of change in supply of shares and the reason behind this rise is amount of liquidity trading (non-information based). Secondly, rise in trading volume shows an asset price risk diversification of insiders.

Field and Hanka (2001), Alamer (2015a; 2015b), Bradley et al. (2001) and Ofek and Richardson (2000) express that lock-up expiration causes a persistent 40% rise in trading volume. Field and Hanka (2001) interpret that an insider trading activity sends noticeable signals for the investors, as the lack of confidence of insiders about the futures' prospects, motivates sales of stocks after the expiration. Consequently, sales by insiders at and around the expiration day may generate negative signals (Brau et al., 2004).

Cao et al. (2004) assert that at and around lock-up expirations, significant diversification selling happens and cause a growth in market liquidity. The reason behind it is that primary owners and early investors generally have a big portion of their personal wealth involved in the company. Moreover, Cao et al. (2004) mention that most of the sales seem to be information selling because the lock-up expiry is the initial opportunity for insiders to offer their stocks without early declaration and, therefore, there is an initial chance to perform on their personal intuitions about the companies' actual value without suffering from all the expenses of any price decreases by revealing their trades.

Bajo (2010) argues that abnormal trading volume is inline with Fama's et al., hypothesis (1969), if it is simultaneous with announcing of new information. It is not common or normal that stock exchange commissions use trading volume as a means of control and find probable misuses (Bajo, 2010). Bajo (2010) mentions that abnormal trading volume is created by informed traders hence, this extra trading activity may cause future share's excess performance.

Bajo (2010) cites abnormal trading by itself does not show a plausible sign for the future returns; consequently, by reviewing the trading volumes, it is not possible to distinguish between bad and good effective events. Bajo (2010) argues that abnormal trading is a positive signal on average.

By delving into the Malaysian literature in the IPOs field, the results show more research on the performance of an IPO itself while there is a gap in studies on the effect of expiration of lock-up contracts on the trading volume (Appendix). However, lock-up provision is compulsory for new issuance companies in Malaysia, but there is a slight difference in length of lock-up provision in each Board. We can compare the results, and see in which Board and sector(s) the fluctuation of trading volume is higher. This outcome shows in which sector(s) the financial efficiency is more than others.

3. METHODOLOGY AND DATA

3.1. Sample and Procedures

The sample employed in this study comprises all IPOs listed on the Main Board, Second Board, MESDAQ, Main and ACE market after the lock-up expiration from January 2001 to December 2011. The final sample of 379 includes all offer for sale IPOs listed on Bursa Malaysia that are affected by lock-up agreements is used. January 2001 is selected as the beginning date since the after-effects of the 1997 financial crisis had been negated by that time. This study defines the event horizon as the (−20, +20) days' time period surrounding the lock-up expiry. The variable that is used in this study is trading volume. Besides the main methodology of the study, the Masulis (1980) comparison period returns approach (CPRA) methodology is also used as a robustness test. In addition, for the CPRA methodology, the event horizon is (−30, +30) days' time period surrounding the lock-up expiry. The data employed in this research were collected from the Bursa Malaysia website (http://www.bursamalaysia.com), the SC (www.SC.com.my), the star online website (http://biz.thestar.com.my/marketwatch/ipo), the http://www.klse.info website and Datastream.

3.2. Proposed Hypotheses

Mostly, IPOs may show abnormal trading activities after the lock-up expiration as an index of insider confidence. Hence, the heavy sale of insiders instantly after the lock-up expiry is understood as a clue of low insider confidence. This is explained to be a bad signal related to the companies' prospects. On the other hand, if there are no abnormal changes in insider trading volume subsequent to the lock-up expiry, it is seen by the investors as a signal of high insider confidence, and thus, a pleasant index of future company value. Ofek and Richardson (2000) and Field and Hanka (2001) and Brau et al. (2004) prove the results of other scholars, on positive abnormal volume surrounding the unlock day.

H1: The abnormal volume around the unlock day is significantly positive for the IPO market.

This hypothesis is divided into two parts: In Malaysia, firms are listed on trading boards of the Bursa Malaysia and are classified into different sectors which show their main businesses. Here, we can breakdown the sample by industrial sectors and board of listing. By breaking down the sample in this way, the source of variation in the trading volume of lock-up expiration due to a company's specific characteristics and broad economic characteristics may be traced (Page and Reyneke 1997).

H1.1: The abnormal volume around the unlock day for each board is significantly positive.

H1.2: The abnormal volume around the unlock day for each sector is significantly positive.

3.3. Methods

This section explains two methodologies used to calculate and test the effects of volume around lock-up expiries.

3.3.1. Analysing abnormal volume

Binder (1998) argues the event study methodology is the standard method to test the effect of some event on company shareholders' fortunes. Goergen et al. (2010), in their paper on the Hong Kong IPO market, applied the following equations for measuring abnormal daily trading volume around the unlock day:

$$VR_{it} = \frac{V_{it}/V_{mt}}{\frac{1}{52}\left[\sum_{t=-100}^{-49}\left(V_{it}/V_{mt}\right)\right]}$$

This equation is used to calculate the market adjusted volume ratio (MAVR), VR_{it} of firm i on day t. In this formula, V_{it} is the trading volume of firm i and V_{mt} is the market index on day t. The V_{mt} can be downloaded from datastream database. AVR_t is a daily average abnormal volume across N companies:

$$AVR_t = \frac{1}{N}\sum_{i=1}^{N} VR_{it}$$

And, $MAVR_s$ is average abnormal volume for N companies in the event window (t_1, t_2), where S is:

$$S = t_2 - t_1$$

$$MAVR_s = \frac{1}{S}\sum_{t=T1}^{T2} AVR_t$$

respectively.

For testing the AVR_t and $MAVRs$, the standard t-test is applied. If the AVR_t and $MAVRs$ are bigger than one, the trading volume on day t over the event window is abnormal.

3.3.2. CPRA

Along with the mentioned methodology for capturing the abnormal trading volume around the lock-up expiration, the CPRA by Masulis (1980) is also conducted. CPRA methodology is used for confirming the results of the previous method. According to Brown and Warner (1980) study, the CPRA is as powerful as the market adjusted approaches. In this methodology, mean daily trading volume (MDTV) for comparison period (non-event period) and also observation period (event period) is calculated. Actually, the event is the lock-up expiration day. We define an event period (event window) as (−2, +2) days prior and following the event day for capturing the effects of lock-up expiration and the comparison period as (−30, +30) days before and after an event period (Masulis, 1980). All the hypotheses are the same as the ones in the previous method, but we test MDTV instead of AVs. The related null hypotheses are as follow:

H0: The MDTV is zero for IPO market, all trading boards and all sectors.

A null hypothesis for comparison period is as below:

H0: The MDTV of the event period equals the MDTV of the non-event period for IPO market, all trading boards and all sectors.

4. FINDINGS

4.1. Profiles of the IPOs Sample

Table 1 shows number of companies in each board between January 2001 and December 2011. Total number of active companies for main, second, MESDAQ boards and main and ACE markets is 379 between the years of 2001 and 2011.

Table 1: Number of companies in each board

Panel A	Main board	Second board	MESDAQ	Total
2001	6	14		20
2002	19	16	8	43
2003	17	18	14	49
2004	14	23	26	63
2005	10	16	41	67
2006	3	7	22	32
2007	10	8	2	20
2008	7	8	8	23
Total	86	110	121	317
Panel B	**Main market**		**ACE market**	
2009	11		2	13
2010	21		6	27
2011	12		10	22
Total	44		18	379

After 3rd August 2009, the structure of Bursa Malaysia changed from three boards to the main and ACE markets, respectively. The number of companies before 3rd August 2009 for main and second boards is 10 and 1, respectively

Table 2: Numbers of companies with a complete set of close price each sector

Construction	10
Consumer products	65
Finance	5
Industrial products	109
Mining	1
Plantation	5
Property	16
Technology	83
Trading/services	85
Total	379

4.2. Sectors

Table 2 shows the number of companies with a complete set of trading volume, in each sector from January 2001 until December 2011. The Mining sector is excluded from analysis because of less number of companies.

4.3. Descriptive Statistics of Main Variables (Trading Volume) During the Event Window from 2001 to 2011

Table 3 shows two event windows - The first event window's duration is (−20, +20) and the second event window's (CPRA) duration is (−30, +30) days before and after the expiration day. The lowest mean trading volume belongs to the Main Board, which is 266,000 shares and the highest mean trading volume belongs to the Main Market, which is 1,235,000 shares. The lowest trading volume range is 541,581,000 shares, which belongs to the main board and the highest trading volume range is 44,488,000 shares which belong to the main market.

4.4. Abnormal Volume Surrounding the Lock-up Expiration Day for Each Board and IPO Market

The market-adjusted abnormal volume ratio (AVR) is not significantly bigger than one on the first day of the Main Board's lock-up expiration, revealing that there is no abnormal trading volume. The average MAVR over the (−20, +20), (−2, +2) and (−7, +7) windows around the first lock-up expiry is significantly bigger than one with values of 1.681, 1.747 and 2.319, respectively.

The AVR is not significantly bigger than one on the first expiry day and other days except day three after the lock-up expiry of the second board, indicating that there is no abnormal trading volume. The MAVR over the (−20, +20), (−2, +2) and (−7, +7) windows around the first lock-up expiry is significantly bigger than one with values of 3.781, 4.290 and 3.584, respectively.

The AVR is not significantly bigger than one on the first expiry day of the first and second MESDAQ lock-up expiration; this shows that there is no abnormal trading volume. The MAVR over the (−20, +20), (−2, +2) and (−7, +7) windows around the first lock-up

Table 3: Descriptive statistics of trading volume during the event window from 2001 to 2011

Model	N	Mean	Median	SD	Range
Volume, main board, first method	3526	270.90	78.7	553.60	5415.80
Volume, main board, CPRA	5246	266.54	80.6	559.38	6020.80
Volume, second board, first method	4510	542.38	76.0	1498.70	21662.70
Volume, second board, CPRA	6710	513.33	66.0	1470.79	21662.70
Volume, MESDAQ first expiry, first method	4961	993.93	140.2	2067.79	13900.30
Volume, MESDAQ first expiry, CPRA	2684	867.98	130.0	1797.23	13900.30
Volume second expiry, first method	4961	278.86	100.0	507.95	4670.70
Volume, MESDAQ second expiry, CPRA	7381	296.02	114.6	527.24	4670.70
Volume, main market, first method	1804	1235.32	232.6	2964.45	44488.10
Volume, main market, CPRA	2684	1247.63	227.9	3164.66	44488.10
Volume, ACE first method	738	364.93	80.4	1099.96	14394.50
Volume, ACE, CPRA	1098	368.13	91.6	969.78	14394.50
Volume, IPO market, first method	15539	649.35	108.3	1894.11	44488.10
Volume, IPO market, first method	15539	649.35	108.3	1894.11	44488.10

SD: Standard deviation, CPRA: Comparison period returns approach, IPO: Initial public offering's

Table 4: Volume reactions of all trading boards and IPO market of Malaysia's stock market after lock-up expiration

Days	N	Abnormal volume																
		−7	−6	−5	−4	−3	−2	−1	0	1	2	3	4	5	6	7	(−7,+7)	(−2,+2)	(−20,+20)
Main board	86	1.7	5.7	2.5	1.9	1.5	2.8	1.4	1.9	1.1	1.6	1.7	1.5	1.1	6.8	1.7	1.7	1.7	2.3
Test value=1		0.4	0.3	0.1	0.2	0.3	0.1	0.5	0.2	0.7	0.3	0.3	0.2	0.6	0.3	0.4	0.001***	0.067**	0.008***
Second board	110	3.4	4.4	2.5	1.9	2.2	3.7	4.5	4.0	3.8	5.4	4.1	2.6	3.2	4.9	3.1	3.8	4.3	3.6
Test value=1		0.2	0.073**	0.3	0.6	0.3	0.2	0.2	0.1	0.1	0.2	0.04**	0.2	0.4	0.2	0.5	0.000***	0.000***	0.000***
First MESDAQ expiry	121	1.2	2.9	1.1	0.8	2.9	2.5	1.7	2.0	3.8	4.3	2.2	3.0	2.6	1.8	1.1	2.0	2.9	2.3
Test value=1		0.7	0.5	0.8	0.7	0.5	0.5	0.6	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.7	0.000***	0.022**	0.000***
Second MESDAQ expiry	121	0.7	0.1	1.2	0.7	1.4	1.3	5.2	5.1	0.9	0.7	0.8	0.4	0.4	0.4	0.4	1.2	2.6	1.3
Test value=1		0.4	0.011**	0.9	0.6	0.7	0.8	0.2	0.2	0.9	0.6	0.4	0.1	0.008***	0.025**	0.014**	0.4	0.2	0.5
Main market	44	0.8	0.7	0.8	0.8	0.9	1.4	1.1	1.2	0.9	1.0	0.9	0.9	0.7	0.8	1.9	1.0	1.1	1.0
Test value=1		0.4	0.056*	0.3	0.4	0.6	0.3	0.8	0.5	0.7	1.0	0.8	0.5	0.2	0.3	0.5	0.8	0.3	0.9
ACE market	18	0.3	0.3	0.4	0.4	1.6	0.4	0.4	0.5	0.5	0.9	0.3	0.7	1.8	1.1	1.9	0.8	0.5	0.8
Test value=1		0.000***	0.000***	0.00***	0.002***	0.67	0.010**	0.001***	0.003***	0.16	0.79	0.002***	0.5	0.44	0.84	0.60	0.058**	0.006***	0.12
IPO market	379	2.1	3.7	2.0	1.5	1.7	2.7	2.5	2.6	2.2	2.9	2.4	1.8	1.9	4.3	2.3	2.3	2.7	2.4
Test value=1		0.013**	0.075*	0.01**	0.061*	0.014**	0.007***	0.012**	0.006***	0.006***	0.015**	0.004***	0.003***	0.014**	0.098*	0.027**	0.000***	0.025**	0.000***

***Indicate significance at the 1%, 5% and 10% levels (two-tailed test), respectively. IPO: Initial public offering's

expiry is significantly bigger than one with values of 1.968, 2.869 and 2.271, respectively.

The AVR and the MAVR are not significantly bigger than one on the first expiry day of the Main Market expiration, which denotes that there is no abnormal trading volume.

The AVR is significantly less than one on the first expiry day of the first ACE lock-up expiration, meaning that there is no abnormal trading volume as what we want. Trading volume does not rise significantly one day after the expiry of the first lock-up period. The MAVR over the (−20, +20) and (−2, +2) windows around the first unlock day is significantly lesser than one with values of 0.794 and 0.534. Field and Hanka (2001) also report that volume for VC backed companies reduces after expiration and goes to its highest point on day +1.

The AVR is significantly different from one on the first expiry day for the IPO market, showing that there is abnormal trading volume. In addition, seven days before expiry and seven days after expiry show an abnormal trading volume. On the expiry day, trading volume increases by 161%. Trading volume rises significantly by 118% one day after lock-up expiration. The MAVR over the (−20, +20), (−2, +2) and (−7, +7) windows around the first lock-up expiry is significantly bigger than one with values of 2.275, 2.725 and 2.424, respectively (Table 4).

4.5. Abnormal Volume Surrounding the Lock-up Expiry for Each Sector (Trading Volume Effect)

The AVR is significantly lesser than one on the first expiry day of the Construction sector. This result denotes that there is no abnormal trading volume as what we are looking for (Table 5).

The AVR is significantly bigger than one on the first expiry day of the consumer products sector, demonstrating that there is abnormal trading volume. Nevertheless, trading volume rises significantly by 269% one day after the expiry of the first lock-up period. The MAVR over the (−20, +20), (−2, +2) and (−7, +7) windows around the first lock-up expiration is significantly bigger than one with values of 2.961, 4.876 and 3.73, respectively. The AVR is not significantly bigger than one on the first expiry day for the industrial products sector, meaning that there is no abnormal trading volume. The MAVR over the (−20, +20), (−2, +2) and (−7, +7) windows around the first unlock day is significantly bigger than one with values of 2.857, 2.352 and 1.962, respectively.

The AVR is not significantly bigger than one on the first expiry day of the Properties sector, denoting that there is no abnormal trading volume. The MAVR over the (−2, +2) and (−7, +7) windows around the first unlock day is significantly bigger than one with values of 1.581 and 1.280, respectively. The AVR is not significantly bigger than one on the first expiry day of the Plantation and Finance sectors, outlining that there is no abnormal trading volume.

The AVR is significantly lesser than one on the first expiry day of the Technology sector, asserting that there is abnormal trading volume at 10% significance level but not as we expect. The

Table 5: Volume reactions of sectors of Malaysia's stock market after lock-up expiration

		Sectors																			
Construction	10	1.1	1.0	0.6	0.8	0.9	1.4	1.0	0.5	0.5	1.3	1.2	1.0	2.6	1.1	1.6	1.1	1.0	1.1		
Test value=1		0.8	1.0	0.1	0.5	0.7	0.5	1.0	0.06*	0.073*	0.7	0.7	0.9	0.5	0.9	0.6	0.1	0.9	0.5		
Consumer product	65	2.4	4.8	2.1	1.8	2.1	3.8	5.7	4.7	3.7	6.6	3.6	2.3	3.0	5.6	4.1	3.0	4.9	3.7		
Test value=1		0.2	0.081*	0.1	0.2	0.2	0.082*	0.06*	0.06*	0.044**	0.092*	0.09*	0.1	0.2	0.2	0.2	0.2	0.000***	0.002***	0.000***	
Finance	5	0.2	0.4	0.3	0.9	1.3	0.5	1.0	1.6	0.6	1.0	0.2	1.5	1.2	0.9	0.4	1.5	0.3	0.9		
Test value=1		0.011**	0.875	0.2	0.876	0.124	0.006***	0.9	0.7	0.97	0.92	0.06*	0.7	0.726	0.033*	0.003***	0.646	0.345	0.863		
Industrial products	109	2.7	3.2	5.6	2.6	1.7	1.7	3.3	2.1	2.6	2.4	2.7	2.4	2.0	2.1	6.8	2.9	2.4	2.0		
Test value=1		0.095*	0.070*	0.2	0.153	0.317	0.302	0.1	0.3	0.22	0.15	0.2	0.09*	0.093*	0.053*	0.305	0.000***	0.001***	0.000***		
Plantation	5	0.3	0.7	0.7	0.9	3.2	0.4	1.0	1.2	0.7	1.1	0.5	1.6	1.5	0.5	0.2	1.3	0.9	1.0		
Test value=1		0.012**	0.453	0.3	0.758	0.327	0.008***	0.9	0.8	0.49	0.92	0.08*	0.4	0.693	0.055*	0.004***	0.236	0.395	0.825		
Properties	16	1.4	1.2	1.0	2.4	1.4	2.3	1.2	1.8	1.1	1.5	0.7	0.7	0.9	0.9	0.6	1.1	1.6	1.3		
Test value=1		0.5	0.8	1.0	0.3	0.6	0.3	0.8	0.5	0.8	0.7	0.5	0.5	0.9	0.9	0.4	0.4	0.059*	0.065*		
Technology	83	0.5	1.1	0.5	0.4	0.5	0.4	0.5	0.6	0.8	1.1	1.0	1.7	0.8	1.0	5.8	1.1	0.7	1.1		
Test value=1		0.015**	0.945	0.07*	0.004***	0.009***	0.001***	0.08*	0.09*	0.41	0.87	0.9	0.3	0.407	0.915	0.382	0.58	0.052*	0.756		
Trading/services	85	1.3	2.2	1.7	1.1	1.4	2.2	1.4	1.5	1.5	1.0	2.6	1.3	0.9	2.4	0.9	1.8	1.5	1.6		
Test value=1		0.5	0.2	0.08*	0.9	0.3	0.097*	0.5	0.2	0.3	1.0	0.2	0.5	0.8	0.3	0.8	0.000***	0.059*	0.002***		

***,**,*Indicate significance at the 1%, 5% and 10% levels (two-tailed test), respectively

MAVR over the (−2, +2) window around the first unlock day is significantly lesser than one with value of 0.677.

The AVR is not significantly bigger than one on the first expiry day of the trading/services sector, highlighting that there is no abnormal trading volume. The MAVR over the (−20, +20), (−2, +2) and (−7, +7) windows around the first lock-up expiry is significantly bigger than one with values of 1.768, 1.511 and 1.551.

4.6. Results of Comparison Period Return Approach

A Table 6 follows which compares the MDTV (for trading volume) of portfolio's lock-up expiry period (event period) with the mean MDTV of pre and post lock-up expiry which is called comparison period. They report significant MDTV for all trading Boards, sectors and IPO market.

4.6.1. Abnormal trading volume for all trading boards and IPO market

Table 6 shows a MDTV of all trading Boards, IPO market and sectors of Malaysia's stock Market during lock-up expiration. In addition, Table 6 shows significant difference between mean MDTV of event period and non-event period.

There is no significant MDTV for the unlock day of the main board, second board, first MESDAQ expiration and main market, but for days surrounding it, there is abnormal daily trading volume. There is a significant MDTV for the unlock day for the second MESDAQ expiration and ACE market. The mean of MDTV of the event period equals the mean MDTV of non-event period for all sectors.

There is a significant MDTV for the lock-up expiry, and the week before and after IPO market. The MDTV of the event period equals the MDTV of non-event period for IPO market. Espenlaub et al. (2001) mention that higher volume at and around the lock-up expiration is compatible with shareholders' selling due to the diversification reasons.

4.6.2. Abnormal trading volume around the lock-up expiry for each sector

There is no significant MDTV for the lock-up expiry of the construction, consumer products, industrial products, properties, technology and trading/services sectors (Table 6). There is a significant MDTV for the lock-up expiry of the finance and plantation sectors. The mean MDTV of the event period equals the mean MDTV of non-event period for all sectors.

Day after lock-up expiration shows a significant increase in MDTV for the Second Board, Consumer Products, Industrial Products and Trading/Service sectors. Day after lock-up expiration shows a significant decrease in MDTV for the main board and main market and also for the properties sector.

7. CONCLUSION AND FUTURE RESEARCH

The study aims to investigate the IPO lock-up provision and its effects on trading volume changes around the lock-up expiry date of Malaysian IPOs by using both the event study methodology and the CPRA as proposed by Masulis (1980). Unlike the US and

Table 6: MDTV of all trading boards, IPO market and sectors of Malaysia's stock market during lock-up expiration

Days	N	MDTV (%)															Significant difference between mean MDTV of event period and non-event period	
		−7	−6	−5	−4	−3	−2	−1	0	1	2	3	4	5	6	7	Mean MDTV of event period	
																	Mean MDTV of non-event period before the announcement	Mean MDTV of non-event period after the announcement
Main board	86	0.93	2.98	3.08	1.394	2.546	0.48	1.72	3.787	1.468	0.8	4.667	0.933	0.959	0.6	1.9	1.651	
																	2.09	3.09
P-value		0.002***	0.11	0.25	0.008***	0.023**	0.031**	0.032**	0.263	0.036**	0.058*	0.013**	0.243	0.028**	0.05*	0.009***	0.708	0.634
Second board	110	3.2	1.8	0.4	0.8	0.5	0.7	2.7	0.3	0.9	1.0	0.4	1.4	0.9	0.6	0.5	1.120	
																	4.47	1.17
P-value		0.16	0.16	0.17	0.052*	0.025**	0.061*	0.058*	0.21	0.044**	0.069*	0.28	0.11	0.019**	0.2	0.09*	0.469	0.918
First MESDAQ expiry	121	1.32	0.13	0.22	1.81	−0.14	−0.26	1.39	0.81	0.88	0.03	0.48	−0.36	0.37	−0.3	−0.04	0.570	
																	0.755	.976
P-value		0.54	0.89	0.79	0.43	0.37	.071*	0.43	0.34	0.52	0.97	0.43	.080*	0.48	0.1	0.9	0.836	.847
Second MESDAQ expiry	121	−0.76	3.15	−0.38	1.61	1.84	6.88	1.90	−0.73	−0.03	0.43	−0.38	−0.26	−0.09	−0.2	−0.0	1.690	
																	1.12	2.49
P-value		0.025**	0.26	0.18	0.468	0.394	0.446	0.45	0.039**	0.483	0.647	0.481	0.261	0.055*	0.08*	0.9	0.643	.838
Main market	44	0.39	0.35	0.46	1.12	1.11	0.77	1.19	1.41	0.64	0.60	0.46	0.19	0.65	3.9	0.5	.921	
																	1.346	1.451
P-value		0.19	0.098*	0.073*	0.042**	0.048**	0.25	0.018**	0.23	0.043**	0.024**	0.16	0.32	0.019**	0.2	0.1	.647	.545
ACE market	18	−0.208	23.9	−0.13	0.809	1.887	2.219	−0.04	−0.238	0.807	−0.416	5.792	−0.062	0.98	0.6	1.2	.466	
																	1.83	1.032
P-value		0.49	0.35	0.50	0.31	.097*	0.39	0.90	.082*	0.27	0.11	0.34	0.85	0.16	0.2	0.3	.456	.529
IPO market	379	0.740	1.52	2.64	1.162	1.145	1.320	0.77	1.850	1.007	0.723	1.910	0.822	0.808	1.3	0.9	1.18	
																	2.68	1.81
P-value		0.000***	0.062*	0.028**	0.162	0.000***	0.000***	0.003***	0.001***	0.000***	0.003***	0.003***	0.041**	0.000***	0.09*	0.00***	0.387	0.544
Sectors																		
Construction	10	0.015	0.13	1.92	0.502	0.331	0.196	0.008	0.976	0.225	1.135	0.998	0.993	0.217	1.5	0.0	0.508	
																	0.827	.690
P-value		0.96	0.65	0.28	0.27	0.54	0.56	0.98	0.38	0.69	0.28	0.30	0.26	0.68	0.1	0.9	0.613	.680
Consumer product	65	0.79	0.40	0.35	1.05	2.07	1.36	1.73	0.36	1.18	0.56	1.07	0.59	0.78	1.1	0.7	1.039	
																	4.592	1.311
P-value		0.054*	0.18	0.15	0.040**	0.14	0.048**	0.12	0.191	0.043**	0.241	0.12	0.095*	0.027**	0.2	0.1	0.622	.739
Finance	5	1.01	0.23	1.23	1.21	1.23	2.23	2.03	−0.23	0.23	0.68	1.35	−0.06	0.24	0.2	3.5	1.996	
																	1.528	4.330
P-value		0.231	0.23	0.34	0.123	0.563	0.753	0.333	.053*	0.234	0.742	0.345	0.895	0.653	0.2	0.4	0.654	0.726
Industrial products	109	3.58	0.67	0.06	0.70	0.49	0.41	2.56	0.27	0.43	1.24	0.27	1.26	0.86	0.0	0.8	−0.979	
																	1.962	1.170
P-value		0.19	0.069*	0.71	0.13	0.040**	0.37	0.11	0.30	0.054*	.069*	0.20	0.22	0.066*	0.8	0.02**	0.467	0.750
Plantation	5	2.05	0.54	4.29	4.21	1.73	3.89	5.08	−0.53	0.82	0.73	12.75	−0.06	0.33	0.4	3.7	1.996	
																	1.528	4.330
P-value		0.34	0.47	0.37	0.30	0.30	0.37	0.41	0.053*	0.35	0.54	0.36	0.88	0.72	0.5	0.3	.654	0.726
Properties	16	−0.32	14.7	19.9	−0.19	1.72	0.56	1.92	0.20	−0.43	0.54	1.99	0.13	1.19	1.5	3.1	0.558	
																	3.416	2.803
P-value		0.094*	0.32	0.35	0.589	0.336	0.273	0.274	0.775	0.038**	0.503	0.206	0.714	0.2	0.3	0.2	0.624	0.633

(Contd)...

Table 6: *(Continued)*

Days	N	MDTV (%)													Significant difference between mean MDTV of event period and non-event period	
		−7	−6	−5	−4	−3	−2	−1	0	1	2	3	4	5	6	7	Mean MDTV of event period	
																	Mean MDTV of non-event period before the announcement	Mean MDTV of non-event period after the announcement
Technology	83	1.03	−0.01	0.81	0.34	0.93	0.35	1.43	0.26	0.68	0.45	5.95	−0.59	1.51	1.0	−0.1	0.634	
																	0.946	1.396
P-value		0.24	0.99	0.38	0.31	0.41	0.68	0.072*	0.17	0.27	0.49	0.29	0.002***	0.19	0.4	0.6	0.551	0.481
Trading/services	85	0.84	8.05	0.20	1.98	1.81	0.36	1.90	−0.09	2.40	0.37	1.33	0.51	1.02	4.3	0.9	0.986	
																	1.660	1.571
P-value		0.041**	0.13	0.43	0.011**	0.061*	0.239	0.066*	0.485	0.039**	0.13	0.267	0.203	0.063*	0.2	0.1	0.459	0.441

*****Indicate significance at the 1%, 5% and 10% levels (two-tailed test), respectively. MDTV: Mean daily trading volume

the UK, Malaysia's lock-up length is fixed and number of shares should be under the lock-up is pre-determined by SC. The sample comprises of 379 Malaysian IPOs, issued from January 2001 to December 2011.

As we expected, there is a significant increase in most boards, sectors and IPO market. A volume rise after the lock-up expiration is also cited by Field and Hanka (2001), Bradley et al. (2001) and Ofek and Richardson (2000). Field and Hanka (2001) interpret that an insider trading activity sends noticeable signals to the investors as the lack of confidence of insiders about the company's future prospects, which motivates sales of stocks after the expiration. On the other hand, if there are no abnormal changes in insider trading volume subsequent to the lock-up expiry, it should be seen by the investors as a signal of high insider confidence and thus, a pleasant index of future company value.

Beside this increase, there is a significant decrease in trading volume for the ACE market, construction and technology sectors, which is not consistent with our hypothesis and there is no evidence in previous literatures regarding the significant negative trading volume before and after the lock-up. These results can be interpreted in a way that insiders of those related boards and sectors do not sell their shares significantly and watch what will happen to the market in future and are optimistic about future. Furthermore, when we do not adjust the trading volume for the market, the CPRA methodology does not show abnormal trading volume between event window and non-event windows. There is a rise in the IPO market but there is a significant negative mean daily trading for the second MESDAQ expiration, ACE market, finance and plantation sectors, which is close to the result of the first methodology. As conclusion, for the expiry day, the first and second methodologies show almost the same result, but in the wider window, there is a difference between these two methodologies due to market adjustment.

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APPENDIX

Lock-up contracts and insider trading in Malaysia (extracted from Bursa Malaysia and SC).

This part explains the rules and regulations and also insider trading on the Main and Second Boards, MESDAQ, main market and ACE market of Bursa Malaysia. Actually, most of this part talks about the listing requirements that have been taken from the Bursa Malaysia and Security Commission websites.

Before 3 August 2009, the types of companies that could be listed on the main board, second board and MESDAQ were different from main market and ACE market. The Main and Second Board's moratorium based on Bursa Malaysia's listing requirement is as below:

i. Main and second board: Yes.
ii. MESDAQ board: Yes, moratorium is applied for all listings.

The following explains the rules and regulations based on listing requirement from the Main Market and ACE Market (after 3 August 2009).

i. Lock-up period of main market: "promoters" entire shareholdings for 6 months from the date of admission.

2- ACE market: Promoters' entire shareholdings for six (6) months from the date of admission, subsequent selling down with conditions.

i. The moratorium assigns to the entire shareholdings of the promoters of an applicant for a period of 6-month from the date of admission to the exchange.
ii. Upon the expiry of the 6-month period stated above, the listed corporation must ensure that the promoters' aggregate shareholdings amounting to at least 45% of the nominal issued and paid-up ordinary share capital of the listed corporation remain under moratorium, for another period of 6-month.
iii. Thereafter, subject to sub-rule (d) below, the promoters may sell, transfer or assign up to a maximum of 1/3rd per annum (on a straight-line basis) of the shares held under moratorium.